BULLETIN OF MISCELLANEOUS INFORMATION No. 7 1934
ROYAL BOTANIC GARDENS, KEW

XXXVI—THE FLORA OF THE LIBYAN DESERT.

In the "Kew Bulletin," 1931, 161–166, a list of the species collected by Mr. W. B. K. Shaw on Major R. A. Bagnold's first expedition to the Libyan Desert was published, together with Mr. Shaw's botanical observations.

Mr. Shaw accompanied a second expedition in 1932, and again brought back a valuable botanical collection from this arid and little-known region. These have been determined by Mr. J. Hutchinson, and are recorded below. For convenience the names of the plants in the first list, which were not collected on the second journey, have been incorporated, in order to make the list of Libyan Desert plants as complete as possible. A reference to the first list is given in such cases.

BOTANICAL NOTES.

W. B. K. Shaw.

The specimens were collected during the expedition to the Libyan Desert in the autumn of 1932 under the leadership of Major R. A. Bagnold, Royal Corps of Signals.

The party of eight members in 4 light Ford cars left Cairo at the end of September and returned thither some two months later after having covered over 6000 miles of largely unexplored country. The route was roughly as follows :—Cairo—Kharga—J. 'Uweinat—Sarra Well—Tekro—J. 'Uweinat—along the eastern boundary of French Equatorial Africa—El Fasher—Meidob Hills—Bir Natrun—Merga—Lagia—Selima— Wadi Halfa—Dakhla—Baharia—Cairo.

The great distances traversed, limited means of transport and the demands of other work rather restricted the time available for the collection of botanical specimens. For this reason attention was concentrated on obtaining a selection of plants from the most remote areas visited, and those areas more easily accessible, such as the Egyptian oases and the sub-desert country of N. Darfur, were neglected.

Between the Nile and Kharga and on from Kharga to J. 'Uweinat there is very little vegetation. A few plants of *Capparis decidua* Pax (Arabic *Tundub*), *Fagonia Bruguieri* DC. and *Cornulaca monacantha* Del. were seen on the limestone north of Kharga but not much to the south.

The great mountain mass of J. 'Uweinat presented a very dried-up appearance, even more so than on the previous visit as the

last good rains seem to have been in 1927. The following additional species were collected: *Juncus maritimus* Lam., *Astragalus Vogelii* Bornm., *Lotononis platicarpos* B. D. Jacks., *Pulicaria undulata* DC., *Desmostachya bipinnata* Stapf, *Cassia obovata* Collad., *Tribulus mollis* Ehrenb. and *Lavandula coronopifolia* Poir. In Broun and Massey's "Flora of the Sudan" (p. 360) this *Lavandula* is reported from the Red Sea Hills, J. Meidob at 3500 ft. and J. Marra at 8200 ft.

There was much *Citrullus Colocynthis* Schrad. on the plain around the mountain and also *Aristida plumosa* L. The latter, with *A. ciliata* Desf. and *A. acutiflora* Trin. et Rupr., are the most common plants in the heart of the Libyan Desert—in the real "howling" desert—growing in small drainage lines or in pure sand. Shallow pans of dried mud on the plain west of J. 'Uweinat contained species of *Aristida*, *Maerua crassifolia* Forssk., *Crotalaria thebaica* DC., and *Acacia flava* Schweinf.

West of Sarra Well, towards the Tibesti mountains, which we did not approach closely, there was very little vegetation, only one grass (no. 20) being found.

At Tekro, a small oasis, *Tamarix* sp., *Acacia flava* Schweinf., much *Salvadora persica* L., *Desmostachya bipinnata* Stapf, and *Juncus maritimus* Lam. were collected.

Going north again from Tekro to J. 'Unweinat for the first 50 miles or so a number of scattered bushes of *Capparis decidua* Pax and one or two patches of *Acacia* were seen. At lat. 20°5′, long. 21°45′, there was an interesting shallow mud-pan about half a mile in diameter, watered, at the occasional rains, by a wadi issuing from a plateau to the west. Here many plants of *Acacia flava* Schweinf. and *Salsola foetida* Del. were found but apparently no other species.

In the Mourdi Valley in lat. 18° 25′ there were solitary plants of *Capparis decidua* Pax, *Acacia flava* Schweinf., *Aristida plumosa* L., *Fagonia Bruguieri* DC. and a *Tribulus*, probably *T. mollis* Ehrenb. (No. 30).

At lat. 17° 55′, long. 24° 55′, in barren featureless country of rolling sand "downs," we ran into a small "forest" of dead trees. These extended for some 5 miles along our route, at a density of 3–5 per acre. All the trees had fallen and the trunks, some 12–15″ in diameter, were cut off at ground level by the sand blast. The wood was blackened and hard, and looked like *Acacia*. The altitude here is about 2100 feet above sea-level, with no sign of depression but rather the reverse. Where, then, did the trees get their water?

In this area, roughly lat. 17° 30′, long. 24° 15′, we met with many patches of green "gizu." This type of vegetation plays so important a part in the annual grazing cycle of the nomad camel-owning tribes of N. Kordofan and Darfur that it is worthy of some description here. The name "Gizu" is derived from the Arabic which means "to content animals with green or fresh pasture," and this implies that they do not require watering. The nomads' year is divided approximately as follows: April to July, "summer

grazing " on trees and dried grasses with the herds watering at the permanent wells ; July to September, " rains grazing " on the green vegetation which the rains have brought, in the region roughly between lats. 14° and 15°; and, if conditions have been favourable, October to March, " winter grazing." It is the last type, the " gizu," with which we are concerned here.

If the rainfall has been sufficient there springs up on the rolling sand country, which is typical of the southern edge of the desert in about lat. 16° to 17°, a sparse covering of low herbs and grasses in large but often strictly localized patches. When the " gizu " is plentiful the nomads move up north with their camels in early autumn and may remain there, living largely on camel's milk, until February or March. During this period the camels will have neither the need nor the opportunity to drink, the " gizu " grasses being succulent enough to take the place of water. The following species were collected from the " gizu " area : *Cyperus compressus* Linn., *Danthonia Forskalei* Trin., *Indigofera argentea* Burm. f., *Indigofera arenaria* A. Rich., *Cenchrus catharticus* Del., *Neurada procumbens* L., *Lithospermum callosum* Vahl., *Giseckia pharnaceoides* L., *Farsetia ramosissima* Hochst., *Morettia Philaeana* DC. Newbold (Sudan Notes & Records, 1924, 87) also reports *Blepharis edulis* Pers., and *Fagonia Bruguieri* DC.

As one approaches the foothills of the Ennedi range in the neighbourhood of Wadi Guroguro, the vegetation increases and the country changes from rolling sand to rocky ridges. Here were found *Acacia, Capparis decidua* Pax, *Boscia octandra* Hochst., *Maerua* sp., *Cornulaca monacantha* Del., *Forskohlea tenacissima* L., *Euphorbia granulata* Forssk., *Tribulus alatus* Del., *Rhynchosia Memnonia* DC., *Morettia Philaeana* DC., and *Monsonia nivea* Webb.

From the Wadi Guroguro to where we struck the Wadi Howa in long. 25°, we were again passing through rolling sand country, the surface either green with " gizu " vegetation from this year's rain, or bare except for the plant stubs of previous years. We dug down in the pure sand at one place and 15" below the surface the sand was moist enough to ball in the hand for a moment. The ground level here is about 2200 ft. altitude, probably 300–400 ft. above the static water table. The loose, sandy surface must play an important part in preventing evaporation and so conserving the scant moisture from an occasional rainstorm from which the plants take their supply.

The Wadi Howa is a remarkable feature, here forming a shallow depression some 4 miles across with a wide belt of trees down the centre. It starts far away to the south-west in French Equatorial Africa, and after winding across the desert for more than 300 miles loses itself in the sands south of Bir Natrun. There is no evidence or tradition of water ever having flowed along it in modern times, though it was probably a river in the Miocene period. How does the vegetation obtain its water ? At the place where we crossed it, trees of *Acacia spirocarpa* Hochst., *Maerua* sp., *Balanites aegyptiaca*

Del., *Boscia octandra* Hochst., and *Leptadenia Spartium* Wight were noticed.

From here southwards to El Fasher we were in the sub-desert country of N. Darfur. The plant types are already fairly well known, and there was no time to make a satisfactory collection in this area of denser vegetation.

Coming north on the return journey the true desert began at about lat. 16° 30′. A few patches of " gizu " were seen, but less than to the west, and occasional bushes of *Capparis decidua* Pax, *Maerua* sp., *Fagonia Bruguieri* DC. and *Cornulaca monacantha* Del. were seen. We re-crossed the Wadi Howa in long. 25° 45′; trees were more scattered here, though some were quite large, such as individual *Acacia spirocarpa* Hochst. I have previously crossed the Wadi still further to the east in long. 27° where the trees are fewer with *Salvadora persica* L. as the predominant species.

West and south-west of Bir Natrun, and between there and Merga, occasional plants of *Capparis decidua* Pax, *Acacia flava* Schweinf. and *Cornulaca monacantha* Del. were noticed, and the same sort of vegetation occurs between Merga and Lagia, though with fewer Acacias. The plants of Bir Natrun and Merga are referred to in Sudan Notes and Records 1924, 87 and 1928, 157.

At Lagia Arba'in half-a-dozen Date Palms, one Dom Palm, *Acacia flava* Schweinf. and *Sporobolus* sp. were growing.

Altogether these journeys have added one family and 11 species not included in the " Flora of the Sudan " by Broun and Massey (1929).

Complete list of plants collected by Mr. W. B. K. Shaw on two expeditions to the Libyan Desert (the first list appeared in the Kew Bulletin, 1931, 161-166).

GNETACEAE.

Ephedra alata var. **Decaisnei** *Stapf*—See *K.B.* 1931, 163.

CAPPARIDACEAE.

Cleome droserifolia *Del.*—See *K.B.* 1931, 163.

Uweinat : about 2050 ft., in sand among rocks of dry watercourse ; a stiff aromatic herb, No. 2.

C. arabica *Linn.*—See *K.B.* 1931, 163.

Maerua crassifolia *Forssk.* Fl. Aegypt.-Arab. p. cxiii (1775).

20 miles south-west of Uweinat, about 1750 ft., a solitary tree, 15 ft., in drainage line on stony plain, No. 16. Vernacular name : *Sareh.*

Distrib.—Mauritania to Arabia and Palestine, and in Somaliland.

CRUCIFERAE.

Farsetia ramosissima *Hochst.* in Flora, **24**, pt. 1, 42 (1841); Oliv. Fl. Trop. Afr. **1**, 63.

Approx. lat. 17°N., long. 24° 30′ E., about 2200 ft., in rolling sandy country, No. 46.

Distrib.—Eastern Sudan and Eritrea, with a variety in the Western Sudan; also in Somaliland.

Morettia Philaeana *DC.*—See *K.B.* 1931, 163.

Wadi Guroguro, about 2300 ft., in sand under shady rocks, Nos. 40, 47.

MOLLUGINACEAE.

Giseckia pharnaceoides *Linn.* Mant. **2**, 562 (1771); Oliv. Fl. Trop. Afr. **2**, 593.

Approx. lat. 17° 00′ N., long. 24° 30′ E., about 2200 ft., in rolling sand country, No. 45.

A common tropical weed.

CHENOPODIACEAE.

Salsola foetida *Del.* Fl. Aegypt. Illustr. no. 310 (1812); Baker & Wright in Dyer, Fl. Trop. Afr. **6**, pt. 1, 87.

Lat. 20° 05′ N., long. 21° 45′ E., about 1800 ft., sandy plain and small mud pan at foot of plateau, stems woody, 1–2 ft. high, No. 24.

Distrib.—North Africa to India.

S. tetrandra *Forssk.*—See *K.B.* 1931, 163.

Cornulaca monacantha *Del.*—See *K.B.* 1931, 164.

Haloxylon Schweinfurthii *Aschers.*—See *K.B.* 1931, 164.

AMARANTACEAE.

Aerva tomentosa var. **Bovei** *C. B. Clarke*—See *K.B.* 1931, 164.

Uweinat: about 2000 ft., Wadi bed, in clumps 2–3 ft. in diam., 2 ft. high, No. 11.

ZYGOPHYLLACEAE.

Fagonia Bruguieri *DC.*—See *K.B.* 1931, 164.

Foot of Jebel Yorguehda, about 1800 ft., on drainage line at foot of hill, in clumps, prickly, 1–2 ft. high, No.26.

Tribulus alatus *Del.* Fl. Aegypt. Illustr. 62 (1812); Oliv. Fl. Trop. Afr. **1**, 284.

Wadi Guroguro, about 2300 ft., in sand under shady rocks, No. 37.

Distrib.—Across N. Africa to India.

Tribulus mollis *Ehrenb.* inSchwe inf. Beitr. Fl. Aethiop. **1**, 29 (1867).

Uweinat, about 2000 ft., in sandy bed of Wadi, prostrate over sand, No. 13.

Distrib.—Libyan Desert through Eastern Sudan to Somaliland.

GERANIACEAE.

Monsonia nivea *Webb.* Fragm. Fl. Aethiop. 59 (1854) ; Hutch. & Dalz. Fl. West Trop. Afr. **1**, 138.

Wadi Guroguro, about 2300 ft., sand under shady rocks, No. 41.

Distrib.—Mauritania to Egypt.

TAMARICACEAE.

Tamarix mannifera *Ehrenb. ex Bunge*—See *K.B.* 1931, 164.

EUPHORBIACEAE.

Euphorbia granulata *Forssk.* Fl. Aegypt.-Arab. p. cxii (1775) ; N.E. Br. in Dyer, Fl. Trop. Afr. **6**, pt. 1, 502.

Wadi Guroguro, about 2300 ft., prostrate in sand under shady rocks, No. 32.

Widely distributed in tropical Africa, Egypt and Arabia.

ROSACEAE.

Neurada procumbens *Linn.* Sp. Pl. 441 (1753) ; Oliv. Fl. Trop. Afr. **2**, 382 ; Hutch. & Dalz. Fl. West Trop. Afr. **1**, 314.

Approx. Lat. 17° 00′ N., Long. 24° 30′ E., about 2200 ft., in rolling sand country, No. 43.

Distrib.—N. African deserts generally eastward to India.

CAESALPINIACEAE.

Cassia obovata *Collad.* Hist. Cass. 92, t. 15A (1816) ; Oliv. Fl. Trop. Afr. **2**, 277 ; Hutch. & Dalz. Fl. West Trop. Afr. **1**, 335.

Uweinat, about 1000 ft., sandy bed of wadi, 12–18 ins. high, No. 12. Vernacular name : *Sanna.*

Distrib.— Tropical Africa generally, extending to S. Africa and India.

MIMOSACEAE.

Acacia flava *Schweinf.*—See *K.B.* 1931, 164.

Uweinat, above and below 2200 ft., dry watercourse, tree up to 12–15 ft., Nos. 3, 10.

A. tortilis *Hayne*—See *K.B.* 1931, 165.

PAPILIONACEAE.

Alhagi Maurorum *Medic.*—See *K.B.* 1931, 165.

Astragalus Vogelii (*Webb.*) *Bornm.* in Beih. Bot. Centrahl. **33**, 233 (1915) ; Hutch. & Dalz. Fl. West Trop. Afr. **1**, 387.

Uweinat, about 2200 ft., dry watercourse, semi-prostrate, 6–12 ins. No. 4.

Distrib.—Dry regions from the Cape Verde Islands to Arabia.

Crotalaria thebaica *DC.* Prodr. **2,** 128 ; Baker in Oliv. Fl. Trop. Afr. 2 : 11.

20 miles south of Uweinat, about 1750 ft., drainage line on stony plain, low herb 12 ins. Nos. 17 ; 36 (seedling).

Distrib.—Eastern Sudan and Nubia.

Indigofera argentea *Burm. f.* Fl. Ind. 171 (1768). *I. semitrijuga* Forssk.—Baker in Oliv. Fl. Trop. Afr. 2 : 93.

Approx. Lat. 17° 25′ N., Long. 24° 10′ E., about 2300 ft., in rolling sandy country, No. 35.

Distrib.—N.E. Trop. Africa, Socotra, and Egypt to India.

Lotononis platicarpos (" platycarpus ") *B. D. Jacks.* Ind. Kew. **2,** 118 (1895). *Lotus platicarpos* Viv. Pl. Aegypt. Dec. 14 (1830). *Lotononis Leobordea* Benth. (1843) ; Baker in Oliv. Fl. Trop. Afr. **2,** 5 ; Bak. f. Legum. Trop. Afr. 17.

Uweinat, about 2200 ft., in dry watercourse, creeping over sandy surface, No. 5.

Distrib.—Algeria to Persia and Arabia, and in the drier parts of Tropical Africa.

Rhynchosia Memnonia *DC.* Prodr. **2,** 386 ; Baker in Oliv. Fl. Trop. Afr. **2,** 220 ; Hutch. & Dalz. Fl. West Trop. Afr. **1,** 401.

Wadi Guroguro, about 2300 ft., in sand under shady rocks, No. 38.

Distrib.—Tropical Africa generally.

SALICACEAE.

Salix safsaf *Forssk.**—See *K.B.* 1931 : 165.

URTICACEAE.

Forskohlea tenacissima *Linn.* Mant. 72 (1767)

Wadi Guroguro, about 2300 ft., in sand under shady rocks, No. 31.

Distrib.—Northern Africa to Arabia and N.W. India.

SALVADORACEAE.

Salvadora persica *Linn.* Sp. Pl. 122 (1753) ; Baker in Dyer Fl. Trop. Afr. **4,** pt. 1, 23.

Tekro Oasis, about 1400 ft., straggling bush on sand mounds, No. 21. Vernacular names : *Shau, Arak.*

Distrib.—Throughout drier parts of Tropical and North Africa through Arabia to India.

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*This name appears to be invalid ; a note will appear on the subject in an early number of the K.B.

COMPOSITAE.

Pulicaria crispa *Benth. et Hook. f.*—See *K.B.* 1931, 165.

P. undulata *DC.* Prodr. **5**, 479 ; Oliv. & Hiern in Oliv. Fl. Trop. Afr. 3 : 365 ; Hutch. & Dalz. Fl. West Trop. Afr. **2**, 156.

Uweinat, about 2200 ft., dry watercourse, No. 6.

Distrib.—From Senegal to Palestine and Arabia.

BORAGINACEAE.

Heliotropium undulatum *Vahl*—See *K.B.* 1931, 165.

Uweinat, about 6000 ft., rocky gorge on mountain top, about 6 ins. high, Nos. 14 ; 39.

Lithospermum callosum *Vahl*, Symb. Bot. **1**, 14 (1790) ; Hutch. & Dalz. Fl. West Trop. Afr. **2**, 201.

Approx. Lat. 17° 00′ N., Long. 24° 30′ E., about 2200 ft., rolling sandy country, No. 44.

Distrib.—From Mauritania through N. Africa to Egypt, Palestine and Arabia.

OROBANCHACEAE.

Cistanche Phelipaea (*Linn.*) *Cout.* Fl. Port. 571 (1913) ; Hutch. & Dalz. Fl. West Trop. Afr. **2**, 231.

70 miles south-west of Bir Natrun, about 1800 ft., parasitic on roots of *Acacia flava* Schweinf., No. 48.

Distrib.—North Africa, S. Europe, eastwards to India.

LABIATAE.

Lavandula coronopifolia *Poir.* Encycl. Suppl. **2**, 308 (1813) ; Baker in Fl. Trop. Afr. **5**, 450 ; Hutch. & Dalz. Fl. West Trop. Afr. **2**, 285.

Uweinat, about 6000 ft., rocky gorge on mountain top, 6 ins. high, No. 15.

Distrib.—From French Sudan to Nubia and Eritrea, and in the Orient generally.

JUNCACEAE.

Juncus maritimus *Lam.* Encycl. **3**, 264 ; Baker in Dyer Fl. Trop. Afr. **8**, 93.

Uweinat, about 2050 ft., on salty ground near rock pool of dry watercourse, 1½–2 ft. high, No. 1.

Distrib.—Maritime and salt pans in desert areas of the north warm temperate zone.

CYPERACEAE.

Cyperus compressus *Linn.* Sp. Pl. 46 (1753) ; Clarke in Dyer Fl. Trop. Afr. **8**, 347.

Approx. Lat. 17° 25′ N., Long. 24° 10′ E., about 2300 ft., rolling sand country, No. 33.

Distrib.—Most tropical and subtropical regions.

GRAMINEAE.

Aristida acutiflora *Trin. & Rupr.*—See *K.B.* 1931, 166.

A. plumosa *Linn.* Sp. Pl. ed. II, 1666 (1762).

Uweinat, frequent around foot and out on plain, common elsewhere, the most common grass in the heart of the Libyan Desert, in small drainage lines in sand and often on sand dunes, in small tufts up to 18 ins. high, Nos. 18, 25, 29.

Distrib.—Mediterranean region and in Persia and Arabia.

A. pungens *Desf.*—See *K.B.* 1931, 166.

Cenchrus barbatus *Schum.* Beskr. Guin. Pl. 43 (1827) ; Stapf & Hubbard in Prain, Fl. Trop. Afr. **9**, pt. 6, 1079.

Approx. Lat. 17° 00′ N., Long. 24° 30′ E., about 2200 ft., rolling sand country, No. 42. 42. Vernacular name: *Heskanit.*

Distrib.—Tropical Africa generally and in India.

Danthonia Forskalei *Trin.* Sp. Gram. t. 49 (1828).

Approx. Lat. 17° 25′ N., Long. 24° 10′ E., about 2300 ft., rolling sandy country, No. 34.

Distrib.—Desert regions from Algeria and the French Sudan to Persia and Arabia.

Desmostachya bipinnata (*L.*) *Stapf* in Dyer, Fl. Cap. **7**, 632 (1900).

Uweinat, about 2200 ft., Wadi bed, near rock-wall, 2–3 ft., No. 8. Vernacular name: *Halfa.*

Distrib.—Eastern Sudan, Egypt, Palestine and Syria through India to Indo-China.

Panicum turgidum *Forssk.*—See *K.B.* 1931, 166.

Phragmites communis *Trin.*—See *K.B.* 1931, 166.

var. **Isiacus** *Coss.*

Uweinat, about 2200 ft., Wadi bed, near rock wall, up to 7 ft. high, No. 9. Vernacular name : *Buzzam.*

Sporobolus spicatus (*Vahl*) *Kunth*, Rev. Gram. **1**, 67 (1829).

Tekro Oasis, about 1400 ft., low sand mounds on oasis floor, spiky grass 1–2 ft. high, No. 22.

Distrib.—From Cape Verde Islands through N. Africa to Arabia and in S. India, Tanganyika Territory and Bechuanaland.

XXXVII.—THE GENUS DENTELLA IN AUSTRALIA.

H. K. Airy-Shaw.

It must be stated at the outset that the following account can constitute but the merest sketch of the actual extent and representation in Australia of this curious little genus. Owing to the insignificant and sometimes almost microscopic dimensions of the plants, their lowly habit, their extremely delicate and fugacious corollas and, in the case of the desert species, their often ephemeral duration owing to scarcity of rain, they have undoubtedly been passed over by many collectors.

Two groups of species may be recognised in Australia, distinguished by the character of the covering of the receptacle and capsule. In the first group, which includes the widespread *D. repens* (L.) J. R. et G. Forst., and its allies, the capsule is covered with hollow, blunt, hyaline, apparently unicellular trichomes, or else is completely glabrous. The second group is exclusively Australian: in it the capsular emergences are much finer and if anything denser, acute, not conspicuously hyaline nor hollow, but more rigid and setose; the capsules themselves, when mature, are distinctly smaller than in the former group.

Thanks for the loan of specimens are due to the authorities in charge of the herbaria at Adelaide and Melbourne (though the specimens from the former proved to belong to other genera), and particularly to those at Brisbane, Sydney and Perth, who not only loaned the whole of their material but generously presented duplicates of nearly every specimen to the Kew Herbarium. Specimens of which duplicates were not presented are indicated in the enumeration by (Q.) for the Queensland Herbarium, Botanic Gardens, Brisbane; (W.) for the National Herbarium of New South Wales, Sydney; and (V.) for the National Herbarium, South Yarra (Melbourne), Victoria.

Conspectus.

Series i. *Coelotrichae*, ser. nov. Receptacula et capsulae trichomatibus cavis hyalinis obtusis patentibus obsita, vel glabra.—Typus seriei, *D. repens*.

Folia anguste usque late elliptica vel ovato- vel obovato-elliptica, circiter 2–3 mm. lata; capsulae maturae circiter 2·5 mm. diametro; trichomata plerumque 1·5 mm. longa..... 1. *D. repens*.

Folia angustissime linearia, saepe fere filiformia, plus minus acuminata, 0·3–1 mm. lata, usque 2 cm. longa; capsulae maturae minores; trichomata breviora vel nulla:

Corolla usque 1 cm. longa; ? planta monoeca..... 2. *D. Browniana*.

Corolla usque 2 cm. longa; planta dioeca.....3. *D. dioeca*.

Series ii. *Chaetotrichae*, ser. nov. Receptacula et capsulae pilis tenuibus setosis acutis adscendentibus dense obsita, nunquam glabra.—Typus seriei, *D. pulvinata*.

Folia iuniora supra plana, costa supra haud conspicue canaliculato-impressa :

Folia utrinque pustulata, uti tota planta scaberrima, usque 3 mm. lata.....4. *D. asperata*.

Folia nec pustulata nec scabra, circiter 1 (–1·5) mm. lata :

Folia anguste elliptica, usque 8 mm. longa ; planta haud pulvinata.....5. *D. misera*.

Folia subrhomboideo-elliptica, usque 3 mm. longa ; plantula plerumque dense congesto-pulvinata.....6. *D. pulvinata*.

Folia iuniora carnosula, pagina superiore costa alte impressa conspicue notata ; plantula tenella, minuta.....7. *D. minutissima*.

ENUMERATION.

1. **Dentella repens** (*L.*) *J. R. et G. Forst.* Char. Gen. Plant. Ins. Mar. Austr. 25, t. 13 (1776) ; J. S. Kerner, J. R. u. G. Forster's Beschr. Pfl. Ins. Süd-See, 25, Bl. iii. fig. 13 (1779) ; G. Forst. Florul. Ins. Austr. Prodr. 17 (1786) ; G. Forst. Ic. Plant. Itin. Ins. Mar. Austr. Coll. t. 35, ex Herder in Acta Horti Petrop. **9,** 495 (1886) ; Benth. Fl. Austr. **3,** 406 (1866), *p.p.*; Bailey, Queensl. Fl. **3,** 747 (1900), *p.p.*; Ewart and Davies, Fl. N. Terr. 255 (1917), *p.p.*; Domin in Biblioth. Bot. **22,** Hft. 89, 1169 (1929), *q.v.* for further references.

Oldenlandia repens L. Mant. Prima, 40 (1767), non Burm. fil.

Hedyotis repens Lam. Tabl. Encycl. Méth. Bot. **1,** 271 (1791).

Heymia rigida Dennst. Schlüss. Hort. Ind. Malab. 16, 21, 35 (1818).

Lippaya telephioïdes Endl. Atakta Bot. 13, t. 13 (1833).

Dentella minima Zipp. ex Spanoghe in Linn. **15,** 317 (1841), *nomen*.

D. stolonifera Montrouzier in Mém. Acad. Imp. Lyon, **10,** 218 (1860), e descr. et teste Guillaum. et Beauvis., Spec. Montrouz., in Ann. Soc. Bot. Lyon, 1913, **38,** 95 (1914).

D. Matsudai Hayata, Ic. Plant. Formos. **9,** 53 (1920), e descr.

NORTHERN TERRITORY. Banks of the Victoria River, dry lagoons, Dec. 1855, *von Mueller* (V.). Sturt's Creek, *von Mueller*. Calvert River, in dense matted patches in river bed, Nov. 1921, *L. Brass* 94.

QUEENSLAND. Carpentaria, "Island A," 25 Nov. 1802, *R. Brown* 3506. Gulf of Carpentaria, *von Mueller*. Dawson River and other parts of subtropical Australia, *von Mueller*. Strathleven County : bed of River Palmer, 11 Aug. 187-, *W. Hann* 65. Sandy bed of Mitchell and other rivers, 1882, *E. Palmer* 16 : "prostrate habit, close to the ground, spreading, with small fleshy green leaves, with long smooth roots." In the sandy bed of the Mitchell (Lower Mitchell), 1882, *E. Palmer* 143 (V.) : "prostrate in a thick bunch, has

small fleshy leaves and a green fruit, both covered with fine short hairs" Cardwell County: Rockingham Bay, moist place, salt wate. creek, 5 Jan. 1865, *von Mueller* (V.): " white flower." Nares County: Trinity Bay, 1886, *W. Sayer* (V.); Cairns, *F. M. Bailey*; Johnstone River, *T. L. Bancroft* 80. Elphinstone County: Townsville, March 1922, *C. T. White* 1618. Davenport County: Charters Towers, *C. F. Plant* 147. Herbert County: bed of Proserpine River, *N. Michael* 719; Proserpine, *N. Michael* 828. Clermont County: Clermont, 1 Mar. 1927, *C. T. White* 3424. Livingstone County: Rockhampton, *F. M. Bailey* 2. Clinton County: Port Curtis, *McGillivray* (Voyage of Rattlesnake) B.158. Yarrol County: Eidsvold, Dec. 1911 and Apr. 1912, *T. L. Bancroft*. Bowen County: Mount Perry, *J. Keys* 52 (Q.) and 709. Cook County: Bundaberg, *N. Michael* 1754. March County: Wide Bay, *Bidwill* 55. Stanley County: " prope Brisbane river Australiae or.," 1863-65, *Amalia Dietrich*; Brisbane River, *F. M. Bailey*; Ipswich, *T. F. Hall* 281; between Northgate and Nudgee, nr. Brisbane, 13 Apr. 1907, *C. T. White* (Q.).

It will be observed from the above enumeration of specimens that *Dentella repens* was among the plants collected in Australia at the beginning of the nineteenth century by Robert Brown. Since, however, the " Prodromus Florae Novae Hollandiae," vol. i. (1810; all published), which follows the system of de Jussieu, ends with the family *Goodenoviae* (included in de Jussieu's Classis ix, Ordo iv, *Campanulaceae*: Juss. Gen. Pl. 165: 1789), the family *Rubiaceae* (Classis x, Ordo ii) finds no mention, and consequently Brown's observations on *Dentella* have never yet seen the light. No apology is therefore offered for publishing here, *in extenso*, that great botanist's careful descriptions of this species and the next, drawn up in each case from fresh specimens on the day following their collection. His acutely critical eye and scrupulous accuracy are clearly discernible in the additions and erasures which occur in the manuscript; it is unfortunate that, for reasons of typography, it is not practicable to reproduce them here. For permission to consult Robert Brown's manuscripts, and to make the necessary extracts, I am much indebted to the authorities at the British Museum (Natural History), South Kensington.

No. 74 spec.

Carpentaria Island a
lect. Novr. 25:
desc. ,, 26: 1802

Ic. Bauer No. 457
Laciniae corollae semitrifidae
lateribus Stam: epigyna
Tubus infra medium paullo ventricosa

Dentella repens

Calyx monophyllus tubulosus sesquilinearis superus ultra medium 5-fidus laciniae aequales lanceolato-subulatae erectae viridis persistens pilis pellucidis hyalinis crassiusculis obtusiusculis sparsis patentibus.

Corolla monopetala alba infundibuliformis 5-fida marginibus laciniarum inflexis. Tubus intus Faux pilosus.

Stamina 5 basi tubi inserta ad basin separabilia inclusa tubo breviora.

Filamenta alba glabra filiformia.

Antherae oblongae albae biloculares loculis longitudine dehiscentibus.

Ovarium inferum ovatum ramentis pellucidis simplicibus filiformibus numerosis obsitum.

Stylus 1 brevis filiformis.

Stigmata duo papulosa patentia filiformia stylo longiora.

Capsula infera globosa ramentis pellucidis numerosis tecta calyce coronata bilocularis polysperma.

Receptaculum seminum nullum nisi dissepimentum medio utrinque incrassatum.

Semina numerosa angulata.

Flores axillares & in dichotomiis sessiles solitarii.

Folia opposita petiolata lanceolato-oblonga plana integerrima glabra crassiuscula nec membranacea 3 lineas longa 1½ lin : lata marginibus juniorum pilis pellucidis.

Petioli breves mediante utrinque stipula membranacea alba in acumen subulato-setaceum producta juncti.

Herbula annua diffusa ramosa glabra 2–6 pollicaris caule ramisque teretiusculis utrinque [?]-leatis radice annua descendente longa subsimplici fibras paucas breves passim dimittente.

Folia in procerioribus 5 lineas longa 21 lin : lata.

Stipulae subciliatae pilis nonnullis longiusculis.

Folia ovata v. elliptica " nuda " ciliata v. hispida.

Dentella repens occurs by rivers and streams throughout the coastal regions of the Northern Territory and Queensland. In the latter State, south of about 17° lat., it is confined to the coastal strip east of the Dividing Range, the most inland locality from which specimens have been seen being Clermont (Leichardt Div.). It has been recorded for all the other States except Victoria and Tasmania, but it has not been possible to confirm these records. The Western Australian records* certainly refer in part to *D. misera* Airy-Shaw, described below (p. 298). Specimens of true *D. repens*, however, collected by von Mueller at Sturt's Creek and on the Victoria River, Northern Territory, near the Western Australian border, are extant in the National Herbarium of Victoria, Melbourne : this would therefore make the occurrence of the species in the adjacent parts of Western Australia at least probable. Unfortunately, it has not been possible to examine J. Forrest's specimens from the Yule and Sherlock Rivers, enumerated by von Mueller.

With regard to New South Wales,† the Cunningham specimen from the Blue Mountains, referred by Bentham (*l.c.* 407) to *D. repens*,

* F. von Mueller, Pl. N.-W. Austr. 9 (1881) ; W. V. Fitzgerald, " The Botany of the Kimberleys, North-West Australia," in Journ. Proc. Roy. Soc. West. Austr. **3**, 210 (1918) ; C. A. Gardner, Enum. Pl. Austr. Occ. 121 (1931).

† Benth. Fl. Austr. **3**, 407 (1866) ; Moore and Betche, Handb. Fl. N.S.W. 248 (1893) ; W. A. Dixon, Fl. N.S.W. 173 (1906).

is *Mitrasacme serpyllifolia* R. Br. (*Loganiaceae*). Moore and Betche give the distribution of *D. repens* as " Dividing range to interior, from Blue Mountains to Queensland," but this is almost certainly erroneous. I have seen no specimen of any species of *Dentella* from the State of New South Wales, though considerations of climate and the general type of vegetation would lead one to expect *D. repens* to be found along the coastal belt in the north-east of the State.

The records for South Australia‡ refer, probably exclusively, to *D. pulvinata* Airy-Shaw (*vide* p. 299 *infra*). The occurrence there of true *D. repens* would be unlikely.

This highly plastic species is as polymorphic in Australia as it is in the Indo-Malayan region, which forms its headquarters. It would be useless and indeed almost impossible to give names to its innumerable variations, striking though these sometimes are. The plant with glabrous capsules, recently described§ as *D. serpyllifolia* Wall., though occurring practically throughout the Indo-Malayan range of *D. repens*, has not yet been found in Australia. (See also note at end of this paper.)

2. **Dentella Browniana** *Domin* in Biblioth. Bot. **22**, Hft. 89, 1170 (1929).

D. repens Benth. Fl. Austr. **3**, 406 (1866), *p.p.*; Bailey, Queensl. Fl. **3**, 747 (1900), *p.p.*; non J. R. et G. Forst.

QUEENSLAND. Gulf of Carpentaria, " Island G," 25 Dec. 1802, and " terra firma " (mainland), 4 Jan. 1803, *R. Brown* 3506 (type, Herb. Kew.). Sellheim River, ? *von Mueller* 111 (V.) : " fls. white."

NORTHERN TERRITORY. On the dry banks of the tributaries of the Fitzmaurice River, Oct. 1855, *von Mueller :* " Prostrata, corolla alba."

var. **setulosa** *Airy-Shaw*, var. nov. foliis et rarius caulibus setulis rigidulis breviusculis patentibus obsitis, receptaculis trichomatibus cavis dense vestitis.

NORTHERN TERRITORY. On the dry banks of the tributaries of the Fitzmaurice River, Oct. 1855, *von Mueller :* " Prostrata, corolla alba." (Growing with the typical glabrous form.)

The following is Robert Brown's description of this species :

No. 20 spec. Carpentaria Island g
Decr. 25 :
descr. ,, 26 : 1802

Ic. Bauer No. 458.

Lacin : apice trident : secund. medium lanceolat plana lateribus adscendentibus. Tubus corollae intus barbatus ab apice ¾ longitudinis ¼ longitud a basi. Filam basi tubi inserta brevia inclusa filam glabra. Stylus filifor : Stigm 2 filiformia. Discus epigynus umbilicatus.

Dentella [integra—*erased*] [angustifolia—*erased*] linearis.

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‡ Benth. Fl. Austr. **3**, 407 (1866) ; J. M. Black, Fl. S. Austr. **535** (1929).
§ Airy-Shaw in Bull. Misc. Inf. Kew, 1932, 289.

Calyx monophyllus superus vix ad medium quinquefidus glaber viridis ultra unam lineam longus tubulatus tubo 5-gono glabro.

Laciniae aequales erectae lanceolato-subulatae marginibus albis angustissimis pilis paucis strictis albis ciliatae.

Corolla trilinearis monopetala infundibuliformis. Tubus calyce fere duplo longior extus viridis glaber campanulatus intus supra filamen : insertionem pilosus.

Faux pilis albis conniventibus.

Limbus patens albus glaber sesquilinearis 5-partitus.

Laciniae aequales secundum medium lanceolatum utrinque planae lateribus adscendentibus undulatis apice tridentato dentibus acutis intermedio paullo productiore.

Stamina 5 tubo inclusa.

Filamenta brevissima infra medium tubi inserta.

Antherae erectae lineares filamentis plus duplo longiores pallide flavae longiter dehiscentes.

Pistillum :

Ovarium inferum turbinatum intra calycem disco parvo crasso annulari viridi glabro terminatum biloculare loculis polyspermis.

Stylus erectus albus glaber filiformis staminibus parum longior.

Stigmata duo filiformia hispida virescenti-albida aequalia semi-exserta.

Flores axillares subsessiles solitarii rudimento parvo ramuli extus stipati.

Folia compressiuscule teretia mucrone brevi viridia glabra sessilia patentia tres lineas longa.

Stipulae ad singulum oppositionem duae interpetiolares membranaceae ovato-triangulares acumine setaceo unico vel pluribus.

Herbula ramosa diffusa digitalis glabra repens rami floriferi erecti. Caules ramique 4 goni lateribus in folia continuis convexiusculis alternis concavis.

Capsula infera calyce coronata pilis albis strictis pellucidis acutis numerosis hispida bilocularis bivalvis loculis polyspermis.

Receptaculum seminum commune medio septo utrinque adnatum longitudine capsulae convexum.

Semina nigra amorpha et varie angulata parva.

Integumentum simplex membranaceo-crustaceum separabile in regione radiculae adhaerens.

Albumen album carnosum.

Embryo albus longitudine fere albuminis rectus dicotyledoneus teretiusculus.

Cotyledones ovatae foliaceae.

Radicula teres cotyledonibus paullo longior

Obs : In Carpentariae terra firma Jan : 4 1803 planta rursus lecta cujus fructus supra descriptus est, hoc in loco omnibus partibus major. Caulis palmaris usque spithamaeus & pedalis.

Folia linearia acuta crassiuscula 5 lin : longa 2/3 lineae lata glaberrima viridia internodiis longiora.

Stipulae membranaceae albae interpetiolares nectentes apice ciliis tribus pluribusve instructae.

Calyx sesquilinearis.

Corolla 5 linearis.

Folia subulata glabra.

Domin does not mention the fact that this species possesses a woody perennial rootstock, corky on the outside, up to 3 or 4 mm. in diameter, from which the annual prostrate stems arise in tufts. Bentham and Bailey (*locis cit.*) assign this character to *D. repens* through failing to distinguish the two species. The receptacle in Robert Brown's specimens is covered with short hollow trichomes,

but in von Mueller's glabrous specimens from the Fitzmaurice River this appears in the young state to be quite glabrous. In the setulose specimens mixed with the latter the receptacle is densely covered with trichomes. The Sellheim River specimen (field label in an unknown handwriting; herbarium label written up "Dentella repens Forst. *var.*" in that of von Mueller) is more or less intermediate between the species and the variety, the young foliage being glabrous and the older more or less hispid, the young receptacles either glabrous or hispid (with rather more slender trichomes than usual), and the only observed mature capsule glabrous.

3. **Dentella dioeca** *Airy-Shaw*, sp. nov. *D. Brownianae* Domin affinis, a qua floribus dioecis, receptaculo vesiculis vel trichomatibus brevibus cavis albis (more fere *D. repentis* Forst.) dense obsito, corolla in genere maxima usque 2 cm. longa discedit.

E speciminibus exsiccatis a *D. Browniana* vix nisi notis supra latis differre videtur. Radice perennante, caulibus gracilibus prostratis, foliis angustissime lineari-filiformibus, calycis dentibus apice setosis cum *D. Browniana* ad amussim congruit. Characteres tamen in diagnosi supra indicati ad speciem novam distinguendam satis valere videntur.

Receptaculum sub anthesi minimum, vesiculis obtusis albis conspicue obsitum. *Calyx* oblongo-campanulatus, circiter 3 mm. longus, basi supra receptaculo valde constrictus, 5-angulatus, dentibus subulatis circiter 1 mm. longis apice setis paucis longiusculis albis praeditis. *Corolla* late infundibuliformis, usque 2 cm. longa, ore (limbo expanso) usque 1 cm. diametro, segmentis ut videtur induplicato-valvatis plus minus obovatis margine erosulis apice rotundatis emarginato-cuspidatis, tenerrima, intus hirsuta, "pallide grisea." *Stamina* floris masculi medio vel sub medio tubo affixa, filamentis subnullis, antheris angustissime linearibus circiter 1·5 mm. longis. *Styli* (inclusis ramis stigmaticis crassiusculis sub lente fere plumoso-papillosis 1·5 mm. longis) floris feminei 6 mm. longi. *Capsulae* maturae non visae, maturescentes (?) usque 2 mm. diametro.

Northern Territory. Darwin, near Ten-mile Lagoon, in dry mud, 20 Dec. 1926, *Lady Rockley* 9: "A delicate pale grey flower growing in trails along the ground with very fine smooth leaves and many flowers at intervals along the fine stem. The only thing near it was the *Drosera*" [*D. petiolaris* R. Br.]. Ibid., *Lady Rockley* 8*a* (found mixed with specimens of the *Drosera*, no. 8). Ibid., 14 Feb. 1932, *Mrs. Norman Campbell* (type, Herb. Kew.): "Very little of it this year owing to the shortage of rain. It is overgrown with weeds and grass." Spring Vale, Port Darwin, *Alfred Giles* (probably this species).

In general habit this species agrees so closely with *D. Browniana* Domin that it would scarcely be possible to separate them on vegetative characters alone. Owing, however, to the very great

disparity in the size of the corollas, it seems best to regard them as distinct. Further collections may show that the small size of the corollas in Robert Brown's Carpentaria specimens is due to shrivelling or bad drying, but this seems unlikely since the specimens are in other respects well preserved.

The extremely delicate and fugacious nature of the corolla throughout the genus *Dentella* renders examination of its parts very difficult. In the specimens collected by Lady Rockley and by Mrs. Campbell, however, the corollas have been dried with considerable care, and it is therefore possible to obtain a better idea of their structure than is usually the case. They are by far the largest yet known in the genus. In Lady Rockley's specimen no. 9, five linear anthers are clearly visible near the middle of the corolla-tube, but there is no sign of a style, while in Mrs. Campbell's specimen the flowers possess a robust style with two almost plumosely papillose stigmatic branches, but apparently no vestige of stamens. The fragments found mixed (in Herb. Kew.) with Lady Rockley's specimens of *Drosera petiolaris* R. Br., which she had noted (*in litt.*) as being the only plant associated with the *Dentella*, agree in floral structure with Mrs. Campbell's gathering. Dioecism or at any rate polygamo-dioecism is, of course, well known in many genera of *Rubiaceae*, but has not yet, so far as the writer is aware, been recorded in the *Hedyotideae*. When the opportunity occurs of examining well-preserved (or, better still, living) corollas of other Australian species of *Dentella*, it may be found that the present species is not alone in having functionally unisexual flowers.

4. **Dentella asperata** *Airy-Shaw*, sp. nov. scabritie omnium partium (corolla excepta) insigni, foliis latis hispidis utrinque tuberculatis vel verruculosis facile distincta.

Herba prostrata, radice ignota. *Caules* pro genere robusti, usque 2 mm. diametro, 25 cm. longi et ultra, straminei, haud multum ramosi, partibus iunioribus valde hispidis vetustioribus parcius. *Folia* late elliptica vel subrhomboidea usque obovata, 5–6 mm. longa, 2–3 mm. lata, brevissime petiolata, apice subacuta, utraque pagina marginibusque scaberrima, pustulata vel minute tuberculata, patentia, vetustiora reflexa, siccitate fuscescentia ; petioli brevissimi ; stipulae conspicuae, albidae, membranaceae, late triangulares vel rotundatae, longe rigide ciliatae vel sublaciniatae, vix 1 mm. longae, 1–2 mm. latae. *Flores* ex omni nodo plerumque orti, breviter oblique pedicellati, pedicellis hispidis. *Receptaculum* hemisphaericum usque subglobosum, circiter 1 mm. diametro, dense tenuiter setoso-hispidum. *Calyx* (praecipue annulo basali ubi receptaculo adnatus) (siccitate plerumque pallidus, valdeac sed minus dense receptaculum) setoso-hispidus, alte (usque ad duas vel tres partes) fissus, segmentis subulato-acuminatis acutis, totus 2–3·5 mm. longus. *Corollae* (saltem maturae) in speciminibus infra citatis fere omnes supra medio tubo praefractae vel quasi praemorsae, sed e corolla unica,

cuius limbi segmenta duo supersunt, tubus 4 mm. segmenta 2 mm. longa videntur, haec 0·75 mm. lata, oblonga, acuta, alabastro apice extra setosa. *Antherae* subsessiles, circiter medio tubo (ubi intus pubescens) affixae, lineares, 1–1·5 mm. longae. *Stylus* filiformis, circiter 5·5 mm. longus (vel ultra ?) inclusis partibus superioribus liberis 1 mm. longis ; stigmata non visa. *Fructus* circiter 1·8 mm. diametro, ceterum ut receptaculum. *Semina* numerosa, nigra.

WESTERN AUSTRALIA (Kimberley Div.) or NORTHERN TERRITORY. Sturt's Creek, March 1856, *von Mueller.*

This is the most robust species of the group. The scabridity of the leaves recalls that of many *Boraginaceae.* Unfortunately, the basal parts were not collected and the species is at present known only from this single gathering.

5. **Dentella misera** *Airy-Shaw,* sp. nov. foliis anguste ellipticis usque 8 mm. longis et 1·8 mm. latis a ceteris *Chaetotrichis* distinguenda.

? *D. repens* F. von Muell. Pl. N.-W. Austral. 9 (1881) ; W. V. Fitzgerald in Journ. Proc. Roy. Soc. West. Austral. 3, 210 (1918), *saltem pro parte,* non J. R. et G. Forst.

Herba perennis, prostrata, caudice lignescente plus minus decorticato usque 2 mm. diametro. *Caules* breves, densiuscule foliati, iuniores puberuli. *Folia* anguste elliptica vel ovato- vel lanceolato-elliptica, 3–8 mm. longa, 0·5–1·8 mm. lata, acuta, subtus marginibus et costa praecipue setuloso-puberula, supra glabra, raro minute setuloso-puberula, iuniora apicem versus longe ciliata. *Stipulae* membranaceae, late subdeltoideae, rotundatae, longe setoso-ciliatae. *Calyx* generis, dentibus longe setoso-ciliatis. *Corolla* manca tantum visa, tubo intus puberulo, 20-nervio (5 praecipuis cum 15 secundariis interiectis) ; nec staminibus nec stylis visis. *Capsula* subglobosa, 1·5–2·0 mm. diametro, pilis albidis tenuibus subsetosis patulo-adscendentibus dense obsita, costis decurrentibus calycis interdum ut videtur glabrescentibus. *Semina* numerosa, subcuneiformia, angulata, atra, testa sub lente punctulata.

WESTERN AUSTRALIA. Kimberley Div.: Meda, Apr. 1905, *W. V. Fitzgerald* 355 (type) : " Prostrate, and forming patches several inches across on wet, black soil, or spreading over rocks." May River, Fitzroy County, Apr. 1905, *W. V. Fitzgerald.* Fitzroy River, Sept. 1906, *W. V. Fitzgerald.*

var. **strigosa** *Airy-Shaw,* var. nov. omnibus partibus maxime foliis dense canescenti-strigosis, stipulis crebre ac longissime ciliatis.

NORTHERN TERRITORY. MacArthur River, Sept.–Oct. 1886, Lieut. Dittrich (V.).

The " type " and the variety are separated somewhat widely, geographically, but they probably represent forms of the same species.

6. **Dentella pulvinata** *Airy-Shaw*, sp. nov. inter *D. miseram* Airy-Shaw et *D. minutissimam* White et Francis fere intermedia, a priore foliis minoribus, a posteriore foliis plerumque maioribus apice acutis supra nunquam canaliculatis, ab utraque habitu dense congesto-pulvinato discedit.

D. repens J. M. Black, Fl. South Austral. 535 (1929), non J. R. et G. Forst.

Herba perennis, pulvinas parvas densas formans, caudice prostrato longe repente. *Folia* subrhomboideo-elliptica usque oblongo-elliptica, in petiolum brevem angustata, 1–3 mm. longa margine levissime incrassata, glabra vel setulis minimis hic illic sparsis. *Stipulae* in pulvina omnino celatae, ut videtur hyalinae, late subdeltoideae, laciniato-setosae usque subintegrae. *Flores* subsessiles. *Receptaculum* 0·5 mm. diametro, adscendenti-setulosum. *Calyx* campanulatus, 1·5 mm. longus, setulosus, lobis lineari-subulatis apice subobtusis subincurvis. *Corolla* (marcescens) circiter 6 mm. longa, lobis 2 mm. longis recurvis, tubo intus villoso. *Stamina* circiter medio tubo affixa, antheris subsessilibus linearibus vix 1 mm. longis. *Stylus* circiter 4 mm. longus, ramis stigmaticis longe papillosis vix 1 mm. longis. *Capsula* 1·0–1·5 mm. diametro, hispido, calyce saepe pallido.

South Australia. Region of Lake Torrens, 1859, *McDouall Stuart* 201. Vicinity of Lake Eyre, *Andrews* 236. Ibid., *Lewis* (V.). Cooper's Creek, on the banks 20 ft. above water, ? *von Mueller* (V.). Between Stokes Range (Queensland) and Cooper's Creek, *Dr. Wheeler* (V.) (type).

Queensland. Barcoo, *Howitt* (V.).

var. **repanda** *Airy-Shaw*, var. nov. habitu laxiore haud congesto-pulvinato, foliis paullo maioribus minute setulosis distincta.

Central Australia. Sine loc. exact., 1883, *Winnecke* (V.)

7. **Dentella minutissima** *White et Francis* in Proc. Roy. Soc. Queensl. 1921, **33**, 156 (1922).

Queensland. Gregory North : Elderslie, near Winton, 19 Jan. 1897, *F. L. Berney* (type). " Dawson River and other parts of subtropical Australia," *von Mueller* (mixed with specimens of *D. repens* in Herb. Kew.).

Northern Territory. Banks of the Victoria River, dry lagoons, Dec. 1855, *von Mueller* (V.; mixed with specimens of *D. repens*).

Western Australia. Fitzroy : May River, Apr. 1905, *W. V. Fitzgerald* (mixed with specimens of *D. misera* in Herb. Kew., ex Nat. Herb. N.S.W., Sydney).

Apart from the type gathering, this inconspicuous little plant seems to be represented by " accidental " collections only, such as the three enumerated above. These are of interest as showing

something of its range, both geographical and morphological. The following details are given to supplement the original description.

Caules interdum laxe repentes, internodiis usque 1 cm. longis. *Folia maiora* spatulata, usque 6 mm. longa, lamina suborbiculari usque oblongo-elliptica apice obtusa petiolum gracilem subaequante. *Folia minora* ad nodos congesta, costa supra alte canaliculato-impressa. *Stipulae* minimae, vix etiam sub lente visibiles. Tota planta interdum pilis longiusculis sparsis tecta. *Calyx* pro tantilla plantula latiusculus, campanulatus, albidus. *Corolla* fauce villosa.

The longitudinal channel formed by the impressed midrib, on the upper surface of the younger, somewhat fleshy leaves, is an easily recognised characteristic when seen under a lens.

A note may here be added in connection with the non-Australian species, *D. serpyllifolia* Wall., described in *K. B.* 1932, 289. Shortly after the publication of the description of this plant, the writer received from the herbarium at Buitenzorg, Java, a selection of specimens kindly loaned by Dr. C. G. G. J. van Steenis, some of which Dr. D. F. van Slooten had suggested showed intermediates between *D. serpyllifolia* and *D. repens*. It may, perhaps, not be out of place here to record the substance of the report sent to Buitenzorg as a result of careful examination of these specimens. All were Javanese, with the exception of one from the Philippines : this, being a new record, may be mentioned here.

Luzon. Prov. of Rizal : Morong, Aug. 1906, *Maximo Ramos* (Bur. Sci. no.) 1398.

The substance of the report was as follows :—

The question as to whether these two should be regarded as one species or as two seems to be a matter of convenience and of opinion. They admittedly differ in (apparently) one character only, but that one character is clear-cut : no specimen has been seen which has given rise to any doubt as to the group to which it belongs. Furthermore, no mixed gathering has yet been seen, unless one of the Javanese specimens (*C. A. Backer* 17702*a*, " gemengd met *D. repens* ") represents part of one. Observations on this point, *i.e.*, to what extent the two forms grow together, and how far, under such circumstances, there is any correlation with variation in vegetative characters (habit, leaf-shape, etc.), would be of interest. In the absence of experiments on the genetic constitution of these plants, by selfing, etc., no finality would appear to be attainable. For the present it may be convenient to refer to the two forms by binary names, without necessarily any implicit or explicit commitment as to specific, subspecific or other rank, except that the term " variety " —implying, as it does, fluctuation or instability—is not logically applicable in the case of a pair of clear-cut, non-intergrading characters. [Parallel instances can be adduced, e.g., *Galium spurium* L. and *G Vaillantii* DC., *Asperula taurina* L. and *A. leucanthera*

G. Beck, *Meconopsis betonicifolia* Franch. and *M. Baileyi* Prain, though in the last two cases the members of each pair are geographically separated. In the *Galium* and *Meconopsis* the ovary and capsule are *either* glabrous *or* hispid, as in *Dentella*; in the *Asperula* the anthers are *either* violet *or* white.] In dried specimens of *Dentella repens*, individual capsules may be found with apparently few setae: this is almost certainly due to age or to excessive pressure, since there are almost always other capsules on the same plant showing the typical densely setose covering. No specimen has hitherto been observed in which every ovary and capsule has consistently only an occasional seta here and there.

XXXVIII—TROPICAL AFRICAN PLANTS: XII.*

Albizzia sericocephala *Benth.* in Hook., Lond. Journ. Bot. **3,** 91 (1844) [Mimosaceae]; Fourn. in Ann. Sc. Nat. ser. **4, 14,** 371 (1860); Schweinf., Reliq. Kotsch. 6, tt. 5, 6 (1868). *Acacia sericocephala* Fenzl. in Flora **27,** 312 (1844), nomen nudum. *Inga sericocephala* A. Rich., Tent. Fl. Abyss. **1,** 236 (1847). *Albizzia amara* Oliv. in Oliv., Fl. Trop. Afr. **2,** 356 (1871), non Boiv.; Benth. in Trans. Linn. Soc. **30,** 567 (1875), pro parte africana; Fiori in Agric. Colon. Ital. **5,** 81, fig. 61 (1911). *Albizzia affinis* Fourn. in Ann. Sc.Nat., ser. **4, 14,** 371 (1860).

This well-known African species has for some time been confused by botanists with *Albizzia amara* Boiv., an Indian tree, which differs principally in having fewer and larger leaflets, and in being less pubescent. It was originally considered by Bentham as being distinct from *A. amara*, and was accordingly described as *A. sericocephala*, but later, in his monograph of the *Mimosaceae*, he reduced it to the Indian species, following Oliver, who had called it *A. amara* in The Flora of Tropical Africa a few years earlier. Subsequent authors have followed Bentham in uniting the two species. There are specimens at Kew from the Anglo-Egyptian Sudan, Abyssinia, Uganda and Kenya Colony.—E.M-R.

Vigna juncea *Milne-Redhead*, sp. nov. [Papilionaceae]; ab omnibus speciebus africanis caulibus annuis floriferis gracilibus erectis nudis, racemis terminalibus elongatis multifloris valde distincta.

Herba perennis, glabra, praecox, caudice subterraneo horizontali repente. *Caules* foliosi non visi. *Caules* floriferi annui e basi caulium maturorum (saepissime ustorum) orti, aphylli, erecti, graciles, basi et superne simplices vel ramosi, in toto usque 50 cm. longi, infra racemum gemmis instructi. *Racemi* usque 20 cm. longi, floribus in fasciculos 2–3-floros 5–12 dispositis internodiis usque 3 cm. longis; pedicelli usque 3 cm. longi, apice bibracteolati; bracteolae ellipticae, acutae, vix 2 mm. longae, caducae. *Calyx* plus minusve

* Continued from *K.B.* 1933, 479.

infundibuliformis, usque 3·5 mm. longus, dentibus triangularibus subacutis minute ciliatis. *Vexillum* transverse ellipticum, breviter emarginatum, basi unguiculatum et auriculatum, usque 9·5 mm. altum et 11 mm. latum, latere altero majore. *Alae* oblongae, curvatae, basi angustissime unguiculatae, ungue circiter 2 mm. longa, et angustissime calcaratae, calcari circiter 1·5 mm. longo, toto usque 11 mm. longae et 4 mm. latae, subaequales. *Petala carinae* lunata, apice valde incurva et leviter lateraliter contorta, basi in unguem 2·5 mm. longam attenuata, inaequalia, circiter 1 cm. longa et 4 mm. lata. *Stamina* circiter 12 mm. longa, vexillare brevius, circiter 9 mm. longum ; filamenta superne expansa ; antherae vix 1 mm. longae. *Ovarium* lineare, circiter 5 mm. longum, circiter 12-ovulatum ; stylus linearis, 10 mm. longus, apicem versus valde barbatus, leviter curvatus ; stigma leviter obliquum, valde pilosum. *Legumen* non visum.

Northern Rhodesia. Mwinilunga District : on burnt ground in *Brachystegia* woodland about 16 Km. east of Mwinilunga, 9 Sept. 1930, *Milne-Redhead* 1072 ; slender erect leafless shoots up to 30 cm. high. On burnt ground in open *Brachystegia* woodland about 35 Km. east of Mwinilunga, 10 Sept. 1930, *Milne-Redhead* 1079 (type) ; perennial with long tapering horizontal root ; stems 3–5 dm. high ; leaves not seen ; flowers dull mauve with a slightly twisted keel.

Tanganyika Territory. Mbeya District : common after burns in *Brachystegia-Uapaca-Parinari* woodland at Mbozi, 1500 m., 28 Aug. 1933, *Greenway* 3617 ; a yellow-flowered perennial herb up to 3 dm. high, flowering when quite leafless ; seeds eaten by natives. Chinyika name :—*Chimambala*.

var. **major** *Milne-Redhead*, var. nov. a varietate typica omnibus partibus florum majoribus, carina apice minus recurvata differt.

Calyx usque 5 mm. longus. *Vexillum* usque 16 mm. altum et latum. *Alae* circiter 18 mm. longae et 6 mm. latae ; unguis circiter 3 mm. longus et calcar 2 mm. longum. *Petala carinae* 16 mm. longa et 8 mm. lata. *Stamina* circiter 17 mm. longa. *Ovarium* circiter 10 mm. longum ; stylus circiter 15 mm. longus. *Legumen* non visum.

Northern Rhodesia. Mwinilunga District : on burnt ground in *Brachystegia* woodland about 64 Km. south of Mwinilunga and 16 Km. west of R. Lunga, 12 Aug. 1930, *Milne-Redhead* 889 ; perennial with running rootstock, flowering without leaves ; flowering stems 30–45 cm. high ; standard mauve, rest of the flower yellowish white ; old partly burnt leafy shoots 60 cm. long or more.

V. juncea is a most distinct and easily recognized species. But it is difficult to find a satisfactory affinity for it on account of its leaves and stipules not being known, for the classification of the genus *Vigna* in E. G. Baker's Leguminosae of Tropical Africa depends largely on foliage characters. It is however most likely to belong to the section *Liebrechtsia* (De Wild), as, in some respects, it appears related to *V. nuda* N.E.Br., although superficially it looks very

different from that species. Its flowers are very much smaller than those of *V. nuda*, but they are somewhat similarly asymmetrical on account of the keels being twisted out of the vertical plane and the standards being slightly unequal-sided. It differs from all other described African *Vignae* by its erect slender leafless stems terminated by long racemes of rather small flowers arranged 2–3 together at the nodes, which number anything from five to twelve. It is named *V. juncea* on account of its habit when in flower. The colour of the flowers appears to be variable, as the specimens from Tanganyika Territory, it will be noted, are said to have yellow flowers, whilst those of the type were dull mauve and the flowers of var. *major* are mauve and yellowish white. The flowers of var. *major* are exactly similar to those of the typical plant except that they are larger in all their parts, and the keel is slightly less inflexed at its apex. In other respects the plants are indistinguishable as far as is known.

Asclepias tanganyikensis *E. A. Bruce*, sp. nov. [Asclepiadaceae] ; affinis *A. longissimae* N. E. Br. sed floribus minoribus, calyce pubescente, coronae lobis cornutis nec papillosis differt.

Herba perennis, caulibus solitariis simplicibus vel basi ramosis teretibus striatulis pilorum linea una puberulis aliter glabris. *Folia* sessilia vel breviter petiolata, elongato-linearia, 14–17 cm. longa, 2–4 mm. lata, apice sensim acuminata, basi cuneata, margine recurvata, utrinque glabra. *Inflorescentia* 1–3-umbellata, longe pedunculata, umbellis 3–9-floris, bracteis linearibus deciduis, pedicellis 2–3 mm. longis pubescentibus. *Sepala* 3 mm. longa, circiter 1 mm. lata, lanceolata, acuta, intra glabra, extus pubescentia, margine ciliata. *Corolla* prope basin lobata, plerumque reflexa, extus minute pubescens, purpurea, intra pallido-viridis, lobis circiter 1·1 cm. longis 9 mm. latis late ovatis. *Coronae* lobi 1 mm. supra basin gynostegii exsurgati et ultra eum extendati, lateraliter compressi, 3 mm. longi, 2·5 mm. lati, subrectangulares, margine incrassato bicornuto. *Gynostegium* circiter 3 mm. longum.

Tanganyika Territory. Iringa District : Mt. Lukota, 5600–6600 ft., *Rear-Admiral Lynes* I. h. 90 (type) ; Signal Hill, 5400–5800 ft., in poor soil under *Brachystegia*, flowers with greenish-purple petals and pale green corona, *St. Clair Thompson* 468.

Caralluma Rogersii *E. A. Bruce et R. A. Dyer*, comb. nov. [Asclepiadaceae]. *Stapelia Rogersii* L. Bolus in Ann. Bolus Herb. **1**, 194 (1915). An examination of authenicated material of this species shows that the inner and outer corona-lobes are united at the base. This together with the narrow corolla-lobes and general habit of the plant justifies its transference from *Stapelia* Linn. to *Caralluma* R. Br.

In the type description the very characteristic inner corona-lobes (" squamae ") are described as " . . . erectae, fere ad basin 2-partitae,

segmento dorsali filiformi integro 0·5 cm. longo, *segmento interiore ad antheram 3-partito*, partibus simillimis filiformibus attenuatis, apice tortis intertextisque, 0·8 cm. longis . . . " In a specimen collected by Eyles (no. 7630) at Palm Forest, Lower Sabi, Southern Rhodesia, in January 1934, the interior segment of the inner corona lobe is either 2 or 3 partite.

Gymnolaena tuberosa *E. A. Bruce*, sp. nov. [Asclepiadaceae] ; affinis *G. Newii* Benth. sed pedunculis brevioribus, floribus pubescentibus, foliis basi nec cordatis differt.

Frutex usque ad 2 m. altus, ramis lenticellatis costatis pubescentibus demum glabrescentibus. *Folia* breviter petiolata, linearilanceolata vel oblongo-lanceolata, 6–11 cm. longa, 0·7–2·5 cm. lata, apice sensim acuminata, basi late cuneata vel rotundata, supra glabrescentia, infra leviter costa media valde pubescentia. *Inflorescentiae* axillares, congestae, breviter pedunculatae, pedunculo lignoso circiter 5 mm. longo pubescente, 3–10 cymulis confertis basi cicatricibus bractearum delapsarum notatis ; pedicelli circiter 3 mm. longi, pubescentes. *Calyx* 5-lobatus, pubescens, lobis ovatis circiter 1 mm. longis basi multo glandulosis. *Corolla* brunnea, dense pubescens, 2–3 mm. longa, lobis ovato-lanceolatis acutis. *Corona* et *stamina* generis typica. *Folliculi* 4 cm. longi, lanceolati, acuti, breviter pubescentes. *Semina* anguste oblonga, brunnea, compressa, circiter 8 mm. longa, 2 mm. lata, coma coronata.

Tanganyika Territory. Coast of Speke Gulf, Lake Victoria, near Mwanza, 3730 ft., in cracks of the granite rocks near the lakeshore, among Aloes etc., a slender-stemmed shrub with tuberous roots, *Burtt* 2475 (type).

Disperma nudanthera (*C. B. Cl.*) *Milne-Redhead*, comb. nov. [Acanthaceae]. *Dyschoriste nudanthera* C. B. Cl. in Dyer, Fl. Trop. Afr. **5**, 74 (1899).

C. B. Clarke (l. c.) comments on the muticous anthercells of this species, an unusual character in *Dyschoriste*. A careful examination of the plant shows that it is a *Disperma*, for the unripe capsules are flattened and two-seeded, and the calyx when old has the three posticous segments nearly free and the two anticous segments remaining fused for half their length. Moreover the muticous anthers agree very well with those of certain species of *Disperma*. The affinity of *D. nudanthera* is with *D. parviflorum* (Lindau) C. B. Cl. and *D. crenatum* (Lindau) Milne-Redhead, from both of which it differs in having one stigmatic arm supressed.

Dyschoriste procumbens *E. A. Bruce*, nom. nov. [Acanthaceae]. *D. decumbens* Bruce in Kew Bull. 1932, 99, non O. Kuntze.

Monechma ciliatum (*Jacq.*) *Milne-Redhead*, comb. nov. [Acanthaceae]. *Justicia ciliata* Jacq, Hort. Vind. **2**, 47, t. 104 (1772), non

Pers. (1805). *J. ciliaris* L. f. Suppl. 84 (1781), synonymis Burmanni et Hermanni exclusis; Ait. Hort. Kew. **1**, 27 (1789); Vahl, Symb. **2**, 15 (1791); Willd., Sp. Pl. **1**, 90 (1798). *Monechma hispidum* Hochst. in Flora **24**, 375 (1841); C.B. Cl. in Dyer, Fl. Trop. Afr. **5**, 213 (1900); Broun & Massey, Fl. Sudan 347 (1929); Hutch. & Dalz., Fl. W. Trop. Afr. **2**, 266 (1931). *Pognospermum ciliare* Hochst. in Flora **27**, Beil. 6 (1844). *P. hispidum* Hochst. in Flora **27**, Beil. 6 (1844). *Schwabea ciliaris* Nees in DC. Prod. **11**, 384 (1847); Benth. in Hook. Niger Fl. 482 (1849); A. Rich., Tent. Fl. Abyss. **2**, 154 (1851); T. Anders. in Journ. Linn. Soc. **7**, 45 (1864); Solms-Laub. in Schweinf., Beitr. Fl. Aethiop. 113 (1867); Oliv. in Trans. Linn. Soc. **29**, 130 (1875); Lindau in Engl. Jahrb. **18**, 64, t. 2, fig. 98 (1894), and in Engl. & Prantl, Pflanzenfam. **4**, 3B, 346 (1895), and in Engl. Pfl. Ost.-Afr. C. 372 (1895); A. Chev., Etudes Fl. Afr. Centr. Franç. **1**, 237 (1913). *S. spicigera* Nees in DC. Prod. **11**, 384 (1847); T. Anders. in Journ. Linn. Soc. **7**, 45 (1863). *Justicia Buetneri* Lindau in Engl. Jahrb. **20**, 68 (1894), and in Engl. & Prantl, Pflanzenfam. **4**, 3B, 349 (1895).

It will be noticed that *Justicia ciliata* Jacq. was published nine years earlier than *J. ciliaris* Linn. f., and *ciliata* was accordingly the earliest epithet to be applied to this plant. The name *Monechma ciliatum* Hochst. ex Nees (DC. Prod. **11**, 411 : 1847) appears in synonymy only, and consequently it has no standing. It referred to the plant now known as *Ecbolium Anisacanthus* (Schweinf.) C.B. Cl.

Barleria splendens *E. A. Bruce*, sp. nov. [Acanthaceae]; affinis *B. taitensi* S. Moore sed spicis longioribus, bracteis obtusis vel subacutis nec apiculatis differt.

Suffruticosa parva, 0·3–1·2 m. alta; rami, praesertim juniores, dense stellato-pubescentes et pilis flavo-brunneis longis appressis adscendentibus obtecti. *Folia* griseo-viridia, petiolata, petiolo 5–15 mm. longo; lamina lanceolata, ovato-lanceolata vel ovata, 4–9 cm. longa, 1·5–4·5 cm. lata, basi anguste cuneata, apice obtusa, supra pilis simplicibus et stellatis leviter obtecta, infra pallidior, dense albo-stellata, pilis simplicibus paucis, nervis utrinque 4–6 supra impressis infra prominentibus. *Inflorescentia* terminalis, dense spicata, usque 12 cm. longa. *Bracteae* ovatae vel late ovatae, usque 2 cm. longae, 1·5 mm. latae, basi cuneatae, apice obtusae vel subacutae, utrinque stellato-pubescentes et pilis simplicibus paucis obtectae; bracteolae 2, lineari-lanceolatae, circiter 2 cm. longae, 2·5 mm. latae, hirsutae, glanduloso-ciliatae. *Sepala* posteriora 1, ovato-lanceolata, 2–2·5 cm. longa, circiter 1 cm. lata, lateralia 2, linearia, circiter 1·5 cm. longa, 1·5 mm. lata, anteriora bidentata aliter posteriore subsimiles, omnia stellato-pubescentia pilis glandulosis et simplicibus obtecta marginibus praesertim. *Corolla* glabra, coerulea, tubo subcylindrico circiter 2 cm. longo 4 mm. lato, lobis subaqualibus oblongo-obovatis circiter 2 cm. longis 8 mm.

latis apice rotundatis. *Stamina* paulo supra basin tubum inserta, filamentis ±3 cm. longis latis compressis pilis reflexis obtectis, antheris anguste oblongis 4 mm. longis. *Ovarium* ovoideum, apice pilosum, stylo tenui glabro 3·3 cm. longo. *Capsula* circiter 2 cm. longa, 8 mm. lata, breviter rostrata, glabrescens, in parte superiore tamen paucis pilis persistentibus. *Semina* orbiculata, compressa, 6 mm. diametro, dense pilosa.

Tanganyika Territory. Shinyanga District: Tindi Hills, 4000 ft. approximately, on the summit of granite hills covered with *Grewia-Acacia pennata* thicket, in the shade of *Commiphora kyimbilensis*, *Burtt* 2409 (type); Mantini Hills, 4000 ft., *Burtt* 2457. Manyoni District: Kilimatindi Escarpment, 3800 ft., on rocky screes, *Burtt* 3577.

Clerodendron grandicalyx *E. A. Bruce*, sp. nov. [Verbenaceae]; affini *C. cordifolio* A. Rich. sed calyce majore corollae tubo aequilongo distinguendum.

Suffrutex subscandens, ramis teretibus brunneo-pubescentibus pilis patentibus. *Folia* opposita, breviter petiolata, petiolo 5–10 mm. longo pubescente; lamina cordato-ovata, integra vel leviter undulata, usque 10 cm. longa, 7 cm. lata, basi cordata, apice abrupte acuminata, supra leviter infra nervis et costa media valde brunneo-pubescens; nervi laterales utrinsecus 5, ascendentes. *Inflorescentia* terminalis, laxe paniculata, pubescens, pedicellis gracilibus usque 1·5 cm. longis. *Bracteae* lineares, usque 1 cm. longae. *Calyx* flavo-albus, pubescens, campanulatus ad mediam partem 5-lobatus, circiter 2 cm. longus, tubo supra basin leviter inflato 1 cm. lato, lobis aequalibus lanceolatis acutis circiter 1 cm. longis corollae tubo aequilongis. *Corolla* flavo-alba, lobis patentibus anguste obovatis vel oblanceolatis apice obtusis vel subacutis 3 superioribus reflexis coccineis ornatis; tubus anguste cylindricus, 2·5 cm. longus, circiter 1 mm. latus, breviter pubescens. *Stamina* 4, valde exserta, recurva. *Stylus* filiformis, e fauce corollae circiter 3 cm. exsertus.

Uganda. Kigezi District: Lake Mutanda, south end, 6200 ft., in secondary growth close to the water's edge, *C. G. Rogers* and *H. M. Gardner* 319 (type).

This species is distinguished by its conspicuous calyx: in other respects it is very similar to *C. cordifolium* A. Rich.

Coleus stachyoides (*Oliv.*) *E. A. Bruce*, comb. nov. [Labiatae]. *Plectranthus stachyoides* Oliv. in Trans. Linn. Soc. **29**, 136, t. 81.

An examination of the type of this plant shows that the filaments of the stamens are united in the lower part. This, together with the fact that the corolla has a short hooded upper-lip and deeply concave lower one, justifies its transference from *Plectranthus* L'Hérit. to *Coleus* Lour.

Lapeyrousia Schimperi (*Aschers. & Klatt*) *Milne-Redhead*, comb. nov. [Iridaceae]. *Tritonia Schimperi* Aschers. et Klatt in Linnaea **34**, 697 (1866) ; Aschers. et Solms in Schweinf. Beitr. Fl. Aethiop. 199 (1867). *Acidanthera unicolor* Hochst. in Schimp. Pl. Abyss. no. 2304 ; ex Bak. in Journ. Linn. Soc. **16**, 160 (1877) ; Martelli, Fl. Bogos. 81 (1886) ; Engl. in Abhandl. Preuss. Akad. Wiss. Berl. 1891, 175 (March 1892) ; Bak. Handb. Irid. 188 (November 1892) ; Klatt in Durand & Schinz, Consp. Fl. Afr. **5**, 198 (1893) ; Bak. in Dyer, Fl. Trop. Afr. **7**, 359 (1898). *Lapeyrousia erythraeae* Chiov. in Ann. Bot., Roma, **9**, 139 (1911).

An examination of the specimen of Schimper no. 2304 at Kew shows it to be a *Lapeyrousia* closely related to *L. porphyrosiphon* Bak. and *L. cyanescens* Bak. Chiovenda* himself identifies his *Lapeyrousia erythraeae* with authentic material of *Acidanthera unicolor* and points out that the plant does not agree with *Acidanthera*, butdoes not make any transference.

XXXIX.—MISCELLANEOUS NOTES.

Professor Henri Lecomte.—The death of the late Director of the Natural History Museum, Paris, on June 12th, 1934, at the age of 79, removes a charming personality familiar to all who have visited that institution. His death breaks yet another link with the past generation of botanists.

Lecomte had a wide and varied interest in botanical science which he maintained throughout his life, as can be judged from his masterly papers on plant anatomy and economic botany as well as his systematic works. One of Lecomte's earliest writings, and one of great taxonomic interest, is a joint paper with the late Professor van Tieghem on " Structure et affinités du Leitneria " published in Bull. Soc. Bot. France, **33**, 181–184 (1886), and in the same volume, pp. 311–317, another anatomical paper of his appeared, " Sur quelques points de l'anatomie de la tige et de la feuille des Casuarinées." In 1889 there followed a long and critical paper "Contribution à l'étude du liber des Angiosperms " in Ann. Sc. Nat. Paris, sér. 7, pp. 193–324. Lecomte's first systematic paper appeared in Journ. de Bot. **10**, pp. 229–235 (1896) " Sur une nouvelle Balanophorée du Congo Français."

In 1897 Lecomte became editor of " Revue de Cultures coloniales," a periodical dealing largely with economic problems, consisting of fifteen volumes, extending over the years 1897–1904. During these years, as might well be expected, he wrote many papers and independent works on Economic Botany, such as " Le cacaoyer et sa culture," 1897 (with Chalot) ; " Les arbres à gutta-percha," 1899 ; " Le Coton," 1900 ; and " Le Vanillier, sa culture, préparation et commerce de la vanille," 1901. At this time

* Chiov. in Nuov. Giorn. Bot. Ital. n.s. **26**, 110 (1919).

Lecomte was Professor of Natural Science at the College of Saint-Louis, Paris. In 1902 he was appointed Assistant Director of the Colonial Laboratory of the Natural History Museum, Paris, and in 1906 he succeeded the late Professor Bureau as Professor of Botany and Director of the Museum. He retained this position for a quarter of a century and during this time became a systematic botanist of world-wide repute. His interest lay mainly in the flora of Indo-China. He was general editor of that most valuable contribution to floristic botany, namely " Flore générale de l'Indo-Chine ". This work was started in 1907 and is now nearing completion. In it Lecomte himself elaborated some of the most difficult families of ligneous plants, such as Sapindaceae, Anacardiaceae, Connaraceae, etc., and a large number of the Apetalae, besides the Eriocaulaceae in the Monocotyledons. From 1909 to 1928 he edited Notulae Systematicae, and contributed very largely to it ; his papers dealing mainly with the flora of Indo-China and the Far East generally.

Amongst other important works written by Lecomte during this period may be mentioned " Les articulations florales " in Nouv. Mus. Hist. Nat. Paris, sér. 5, **2**, 121–244 (1910) ; " Lauracées de Chine et d'Indo-Chine " l.c. sér. 5, **5**, 43–120 (1913) ; " Madagascar : Les bois de la Forêt d'Analamazaotra " (with Paul Danguy 1922) ; " Les Bois Coloniaux " (1926), and " Les Bois de l'Indo-Chine " (1926).

Professor Lecomte was the recipient of many honours both at home and abroad, including Membre de l'Institut ; Professeur honoraire au Muséum d'Histoire Naturelle ; Officier de la Légion d'Honneur, and Commandeur de l'Ordre du Dragon d'Annam. In 1916 he was elected a foreign member of the Linnean Society of London.

In the death of Professor Lecomte Kew loses a valued friend and correspondent.

M. L. GREEN.

Report of the Botanical Society and Exchange Club of the British Isles for 1933.—The report for last year which has just appeared consists of 320 pages (including the report edited by the distributor, F. Rilstone, Esq.). It is thus somewhat smaller than that for 1932, and is illustrated by fewer plates.

The usual features—Plant Notes, Notes on Publications, New Books, etc., Abstracts of Papers bearing on the Study of the British Flora (by A. J. Wilmott and J. S. L. Gilmour), Obituaries, New County and other Records—constitute the first part of the Secretary's Report. Additions and corrections to previous reports and to the Comital Flora, occupy fifteen pages. W. H. Pearsall has papers under the titles " A Holiday in North Devon," " The British Species of Myriophyllum," " Beginning the Study of Grasses," " Some Hybrid Carices," and (with P. M. Hall) " Notes on the

British Orchidaceae." Papers on the flora of Glamorganshire are by H. J. Riddelsdell and E. Vachell. G. F. Scott Elliot has papers on "The Hedge Woundwort—*Stachys silvatica L.*" and "The Birch—*Betula alba L.*" These papers are very interesting, but surely it is unnecessary to have as many as fourteen paragraphs to a page. E. B. Bishop lists additions to the Flora of Northamptonshire, and A. H. Wolley-Dod's address to Tunbridge Wells Natural History Society is published under the title "Curiosities of Plant Life." R. W. Butcher has a useful paper on the "British Species of *Zostera*," but the microphotograph reproductions accompanying the paper are very poor. J. Parkin gives an excellent (though somewhat biased) summary of orthodox and unorthodox hypotheses regarding the nature and origin of the carpel. The attention of those who have to teach floral morphology should be drawn to this account. The article on *Crepis biennis* (in Yorkshire) should have been submitted to the Kew authorities. Mr. Pearsall would then have been told that the specimens sent to Kew by Mr. Flintoff (that is those actually in dispute) have been named *C. biennis*, not *C. oporinoides*, by the present writer, and the identification confirmed by Prof. E. B. Babcock.

Other papers in the report are :—"Variation and a Variant of *Cerastium vulgatum* from Dorset"—which may be described as a sermon followed by a long text—, "Mints that Sport," "Evidence of a Prehistoric Flora in the Ivel District," and "A Visit to the Dagenham Dumps in September 1933."

W. B. TURRELL.

Botanical Magazine.—Part 3 of vol. 157 of the Magazine was published on July 2nd and contains the following plant portraits :—*Rhododendron detonsum* Balf. f. et Forrest (t. 9359), a beautiful pink-flowered species of the *Adenogynum* subseries (*Taliense* series) discovered by Forrest in 1917 on the eastern flank of the Sung Kedei divide, Yunnan ; *Lonicera hispida* Pall. ex Willd. var. *bracteata* (Royle) Rehder (t. 9360), from the N. W. Himalaya and S. E. Tibet ; *Verbena corymbosa* Ruiz et Pavon (t. 9361), a fine garden plant from Chile, known for over 130 years and only recently introduced from near Valdivia by Mr. Clarence Elliott ; *Deutzia rubens* Rehder (t. 9362), a member of the section *Mesodeutzia* from China ; *Tulipa cypria* Stapf (t. 9363), a new species from Cyprus, the description of which was drawn up by Dr. Stapf shortly before his death ; *Cypripedium cordigerum* D. Don (t. 9364), a beautiful terrestrial species from the Himalaya with green petals and sepals and a white labellum, originally sent home by Wallich in 1825 and recently introduced to cultivation by Col. Bailey through the Royal Botanic Garden, Edinburgh ; *Vallea stipularis* Linn. f. var. *pyrifolia* F. Ballard (t. 9365), a new variety from the Andes of South America from Colombia to Peru ; *Ephedra viridis* Coville (t. 9366), a native of the S. W. United States ; *Pedicularis Delavayi*

Franch. ex Maxim. (t. 9367), from Western China ; *Cotyledon rotundifolia* Haworth (t. 9368) from the Cape Province, S. Africa, and *Iris cretensis* Janka (t. 9369), figured from a plant collected by Mr. G. P. Baker in Crete : the species also occurs in Greece, Asia Minor and N. Syria.

The Life Forms of Plants.†—The works of Prof. C. Raunkiaer are of the utmost importance to the ecologist and phytogeographer. The majority have been published at various dates, in Danish, in several Danish periodicals, and, though two were written in French and one in German and accounts of the Life Form System have appeared in English (W. G. Smith in Journ. Ecol. **1**, 1913, and G. D. Fuller and A. L. Bakke in The Plant World, **21**, 1918), the difficulty of consultation of the original papers has been a main cause of Raunkiaer's system not receiving its full due. The admirable book now published by the Clarendon Press must stimulate anew interest in some of the most fundamental problems of plant life.

The book contains English translations of one book and sixteen papers by Prof. Raunkiaer dealing with his Life Form System, its application, statistical researches on vegetation, and a few other subsidiary subjects. Most of the Danish papers have been translated by Mr. H. Gilbert-Carter, of Cambridge, and the French and German ones by Prof. A. G. Tansley, of Oxford, who also contributes an introduction. One hitherto unpublished paper, "Botanical studies in the Mediterranean Region," has been translated by Miss A. Fausbøll. The Rask-Oersted Fund has contributed to the cost of publication.

The beautiful fount and format of the work make it a pleasure to read and handle. The wide lower margin enables a book rest to be used without trouble. The numerous tables are clearly printed and the reproduction of the many photographs as plates is very clear. A special word of commendation must be given to the illustrations of the second paper. It is rare to see black and white botanical drawings so concisely serving their purpose and yet so gracefully artistic.

No attempt can be made in a short notice to summarize the important contents of this book. To do this adequately would require many pages. All who have the welfare of botany at heart must feel deeply indebted to the Danish Committee, to the Rask-Oersted Fund, the Clarendon Press, and the translators. As Prof Tansley says, the book is a "remarkable monument of the life-work of one of the greatest of the minds which have concerned themselves with the deeper problems of plant geography during the first three decades of the present century." W. B. TURRILL.

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†The Life Forms of Plants and Statistical Plant Geography, being the collected papers of C. Raunkiaer, Oxford, at the Clarendon Press, 1934. Pp. 632. Price 35/-.

Sixth International Botanical Congress, Amsterdam, 1935. —We have received from the Secretary the following Notice :—

The Organizing Committee of the VI. International Botanical Congress announces that the following topics preliminarily have been chosen for discussion in the sections :

AGR. Agronomy. (1) Interactions between roots and soil ; interactions between plants. (2) Virus diseases. (3a) Weed flora as an indicator of soil conditions in agriculture. (3b) Grassland associations. (4a) Genetics and breeding of immune varieties. (4b) Inbreeding. (5) Importance of microbiological investigations in the study of agricultural problems. (6) Influencing the cycle of development in plants.

CYT. Cytology. (1) Structure of chromosomes. (2a) Crossing-over versus conversion. (2b) Terminology of cytology and genetics. (3a) pairing of chromosomes in polyploids. (3b) Reduction division in fungi. (4) Chain- and ring-formation of chromosomes. (5a) Submicroscopical structure of the cell wall. (5b) Vacuome, chondriome, plastids. (6) Colloid chemistry of protoplasm ; vital staining.

GEN. Genetics. (1a) Experimental mutations. (1b) Genetical basis of size and form. (2a) Crossing-over versus conversion. (2b) Terminology of cytology and genetics. (3a) Sexuality in fungi. (3b) Reduction division in fungi. (4a) Genetics and breeding of immune varieties. (4b) Inbreeding. (5) Taxonomy and genetics. (6a) Plasm and genotype in their mutual relations. (6b) Lethal factors.

GEO. Geobotany, ecology and phytogeography. (1) Climax associations in N.W. Europe and N. America. (2) Cartography : (a) Vegetation maps ; (b) Area maps. (3) Flora and vegetation area. (4) Plant geography in younger formations. (5) The halophyte problem. (6a) Classification and nomenclature of vegetation units. (6b) Miscellaneous papers.

MOR. Morphology and anatomy. (1a) Size and form. (1b) Genetical basis of size and form. (2a) Phytohormones ; general paper. (2b) Leaf arrangements. (3) Flower morphology. (4) Female fructification and phylogeny of Conifers. (5a) Wood anatomy. (5b) Relations between anatomy and external morphology. (6) Morphology of Bryophytes.

MYC. Mycology and bacteriology. (1) Differential characters in Hymenomycetes. (2) Nomenclature of fungi. (3a) Sexuality in fungi. (3b) Reduction division in fungi. (4) Biologic forms of fungi. (5) Importance of microbiological investigations in the study of agricultural problems. (6) Phylogeny and taxonomy of Phycomycetes.

PATH. Phytopathology. (1) Biological basis of plant quarantine. (2) Virus diseases. (3) Various papers. (4) Biologic forms of fungi. (5) Immunisation. (6) Physiologic diseases.

PB. Palaeobotany. (1) Geobotanical provinces in the older formations. (2) Caytoniales and Pteridospermae and the evolution

of Angiosperms. (3) Flower morphology. (4) Plant geography in younger formations. (5) Synchronism and uniformity in palaeozoic and mesozoic floras. (6) Various papers.

PH. Plant physiology. (1) Photosynthesis. (2a) Phytohormones ; general paper. (2b) (Phytohormones ; various papers. (3) Oxidation, reduction and metabolism. (4) Permeability and the accumulation of mineral elements. (5a) Submicroscopical structure of the cell wall. (5b) Translocation of plastic materials. (6) Influencing the cycle of development in plants.

SYS. Taxonomy and nomenclature. (1) Various papers. (2) Caytoniales and Pteridospermae and the evolution of Angiosperms. (3) Flower morphology. (4) Female fructification and phylogeny of Conifers. (5) Taxonomy and genetics. (6) Phylogeny and taxonomy of Phycomycetes.

Botryostege.—It should have been explained, when the article on this new genus was published in Kew Bulletin, 1934, 191, that the article was drawn up by the late Dr. Stapf some years ago for inclusion in the 147th Volume of the "Botanical Magazine," which the late Mr. Reginald Cory had undertaken to publish for the Royal Horticultural Society.

The plate had also been lithographed and printed off at Mr. Cory's expense. After the material had been completed Mr. Cory considered the plate was not of sufficient interest for inclusion in the Magazine, and he very generously handed over his stock of plates to Kew, together with the article for publication in the Bulletin.

This note explains therefore why this article has now been published so long after the death of Dr. Stapf.

The Flora of Iceland and the Faeroes.—This work, reviewed in Kew Bulletin, 1934, 226, may be obtained from Messrs, Williams & Norgate, Ltd., 28–30 Little Russell Street, London. W.C.1., price 6/-.

The Phenological Report, 1933.*—The report for the year December 1932 to November 1933 has been reprinted from the "Quarterly Journal of the Royal Meteorological Society." The total number of reporting stations from whose observations the report has been compiled is 535, but more helpers are still required, especially in Central Wales, W. Ireland and N.W. Scotland. The year was, of course, remarkable for its warmth, dryness and sunshine, and the phenological effect was very evident. The usual 20 days floral difference between S. England and N. Scotland was halved. Spring migration of birds was normal, but autumn movements, especially of the swallow tribe, were decidedly early. Table XIV summarises the observations kept, with only two breaks, by a Norfolkshire family ever since 1736. The report is copiously illustrated by tables and charts.

*Royal Meteorological Society, 49, Cromwell Rosd, London, S.W.7. Price 3s.